# Supplementary Information

## Magnetic-field induced rotation of magnetosome chains in silicified magnetotactic bacteria

Marine Blondeau, Yohan Guyodo, François Guyot, Christophe Gatel, Nicolas Menguy, Imène Chebbi, Bernard Haye, Mickaël Durand-Dubief, Edouard Alphandery, Roberta Brayner, & Thibaud Coradin

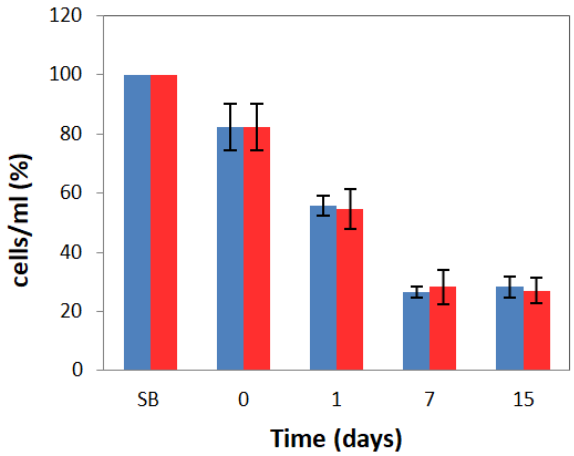



**Figure S1. Viability of silica-encapsulated magnetotactic bacteria in the presence (red) or absence (blue) of an external magnetic field, as determined by the Alamar Blue assay**

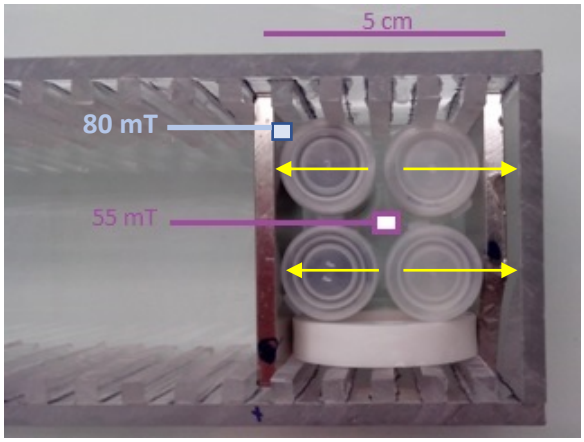



**Figure S2. Experimental set-up for application of an external magnetic field. The samples were placed between two similar magnetic plates to obtain a magnetic field oriented from the center (55 mT) to the plates (80 mT) (direction indicated by yellow arrows)**

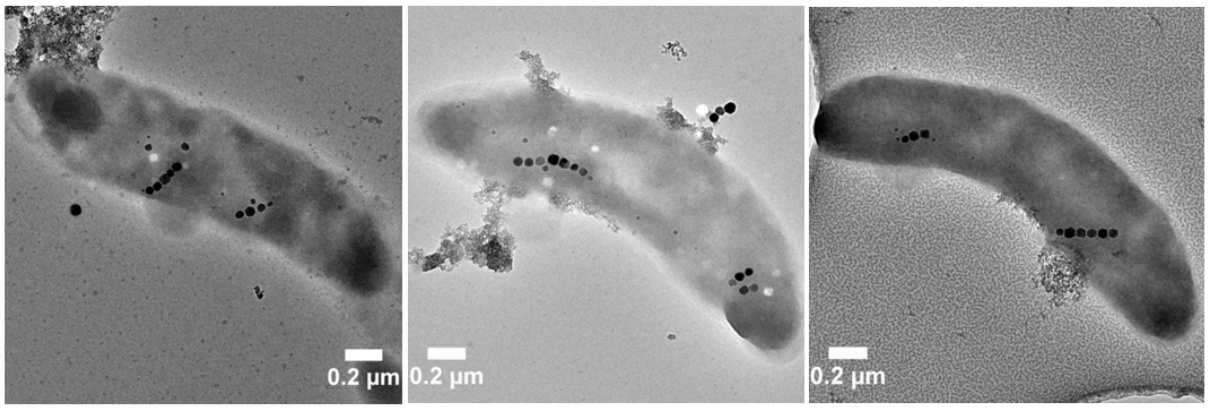



**Figure S3. TEM images of silica-encapsulated magnetotactic bacteria exposed to an external magnetic field during 7 days of encapsulation**

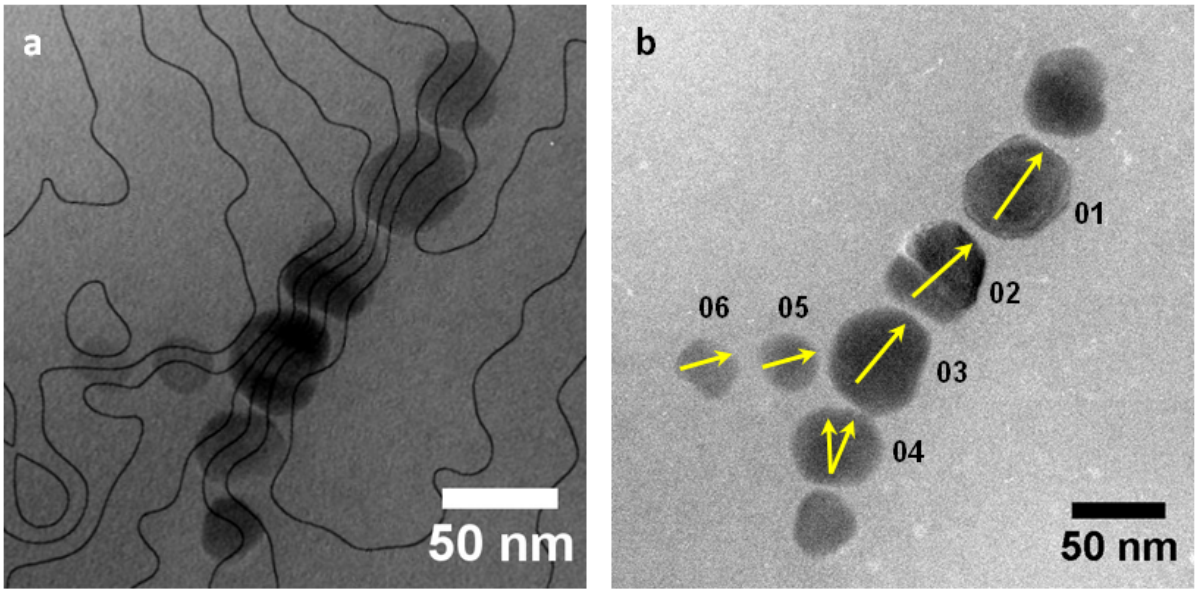
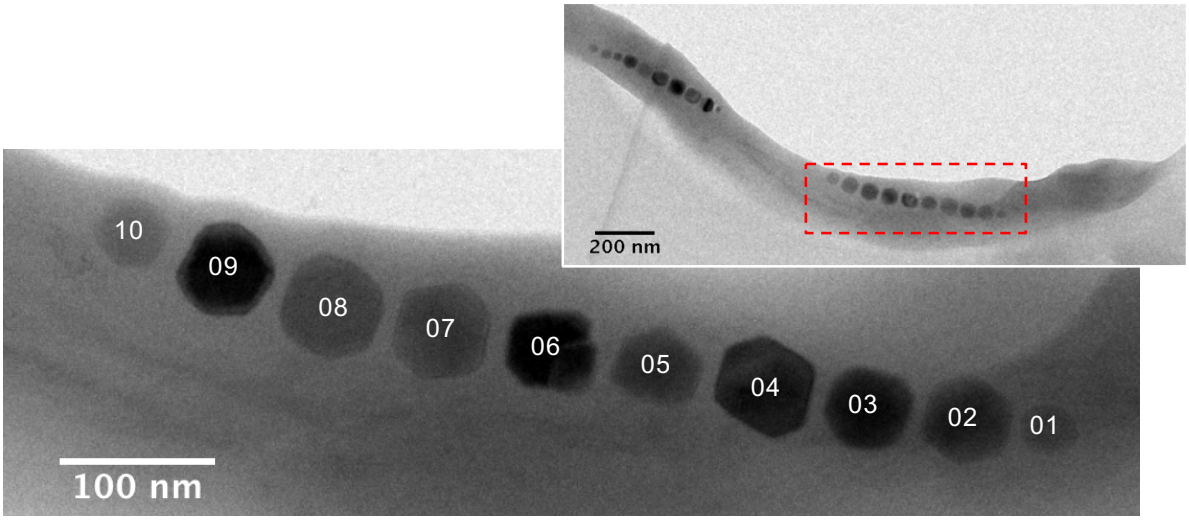



**Figure S4. Electron microscopy studies of magnetic and crystallographic orientations in magnetosomes.** (**a**) Magnetic phase contours of no deviated magnetosomes chain in Fig.4g determined by off-axis EH. (**b**) HRTEM images on magnetosomes chain with <111> directions materialized by yellow bars.


200 nm
10
09
08
07
06
05
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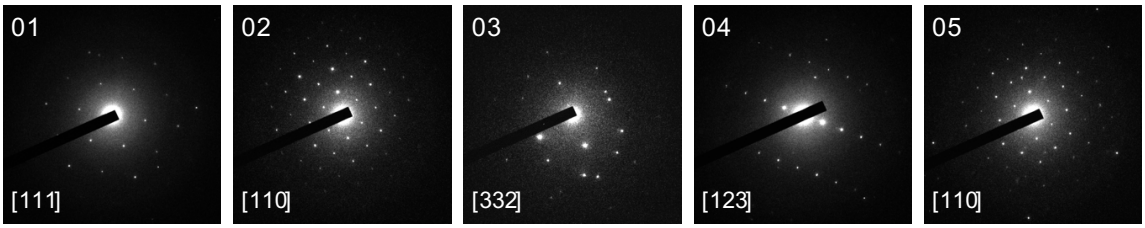
03
02
01
100 nm


01
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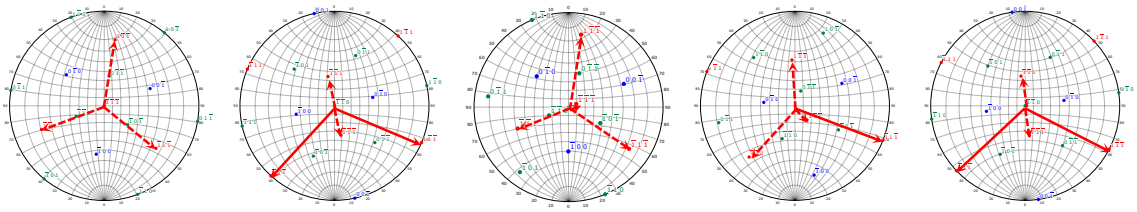
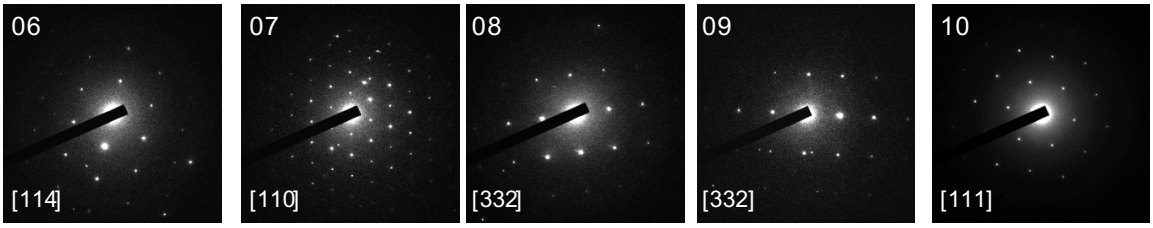
02
[110]
03
[332]
04
[123]
05
[110]

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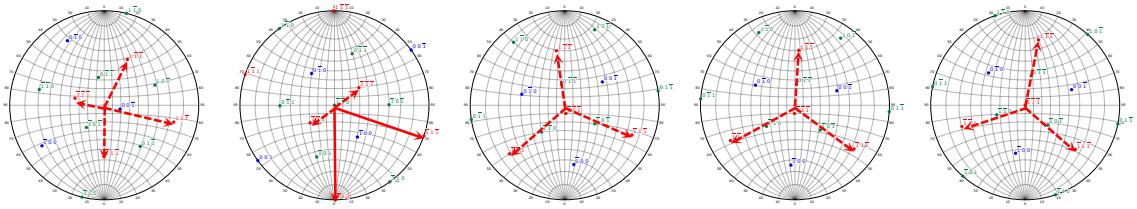

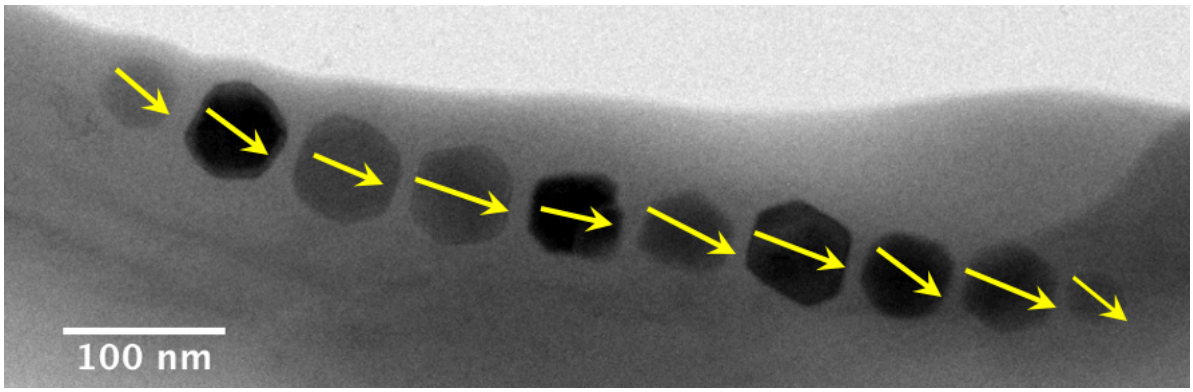


**Figure S5. HRTEM images on magnetosomes of the chain in Fig. 4c.** <111> directions determined by using Selected Area Electron Diffraction (SAED).

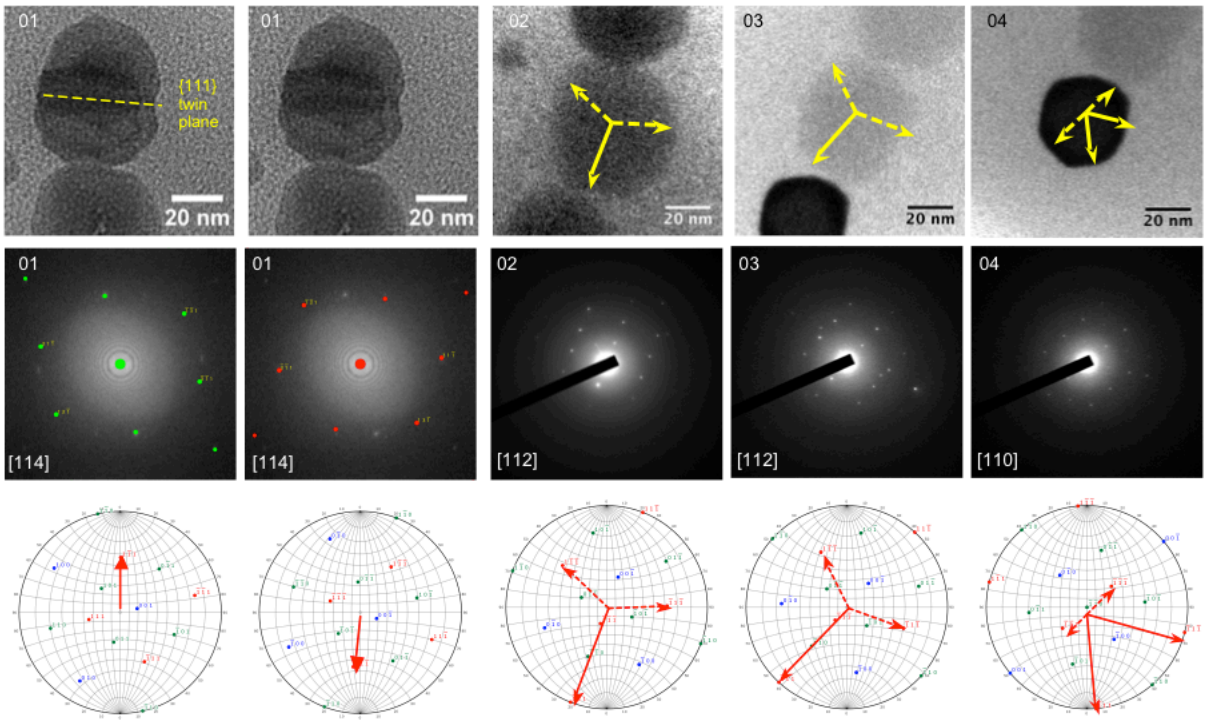


**Figure S6 : HRTEM images on magnetosomes of the chain in Fig. 4f.** <111> crystallographic directions determined by using Selected Area Electron Diffraction (SAED) or Fast Fourier Transform (FFT) or HRTEM images.

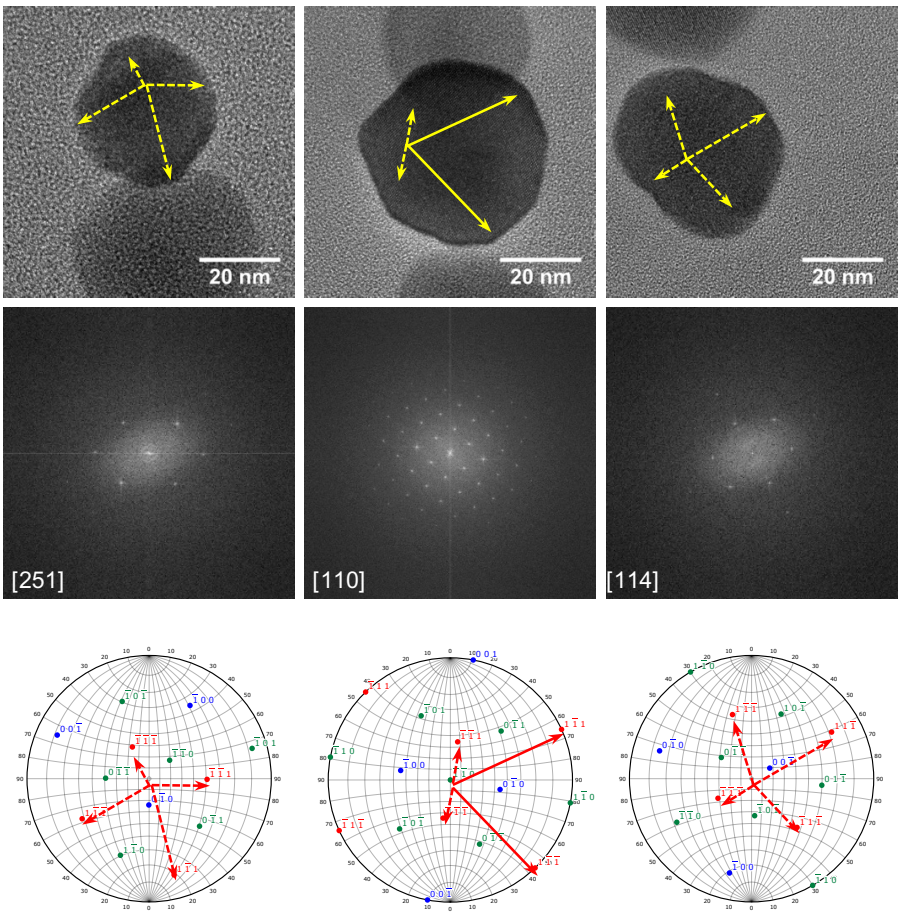


**Figure S7 : HRTEM images on magnetosomes of the chain in Fig. 4i.** <111> directions determined from Fast Fourier Transform (FFT) on HRTEM images.

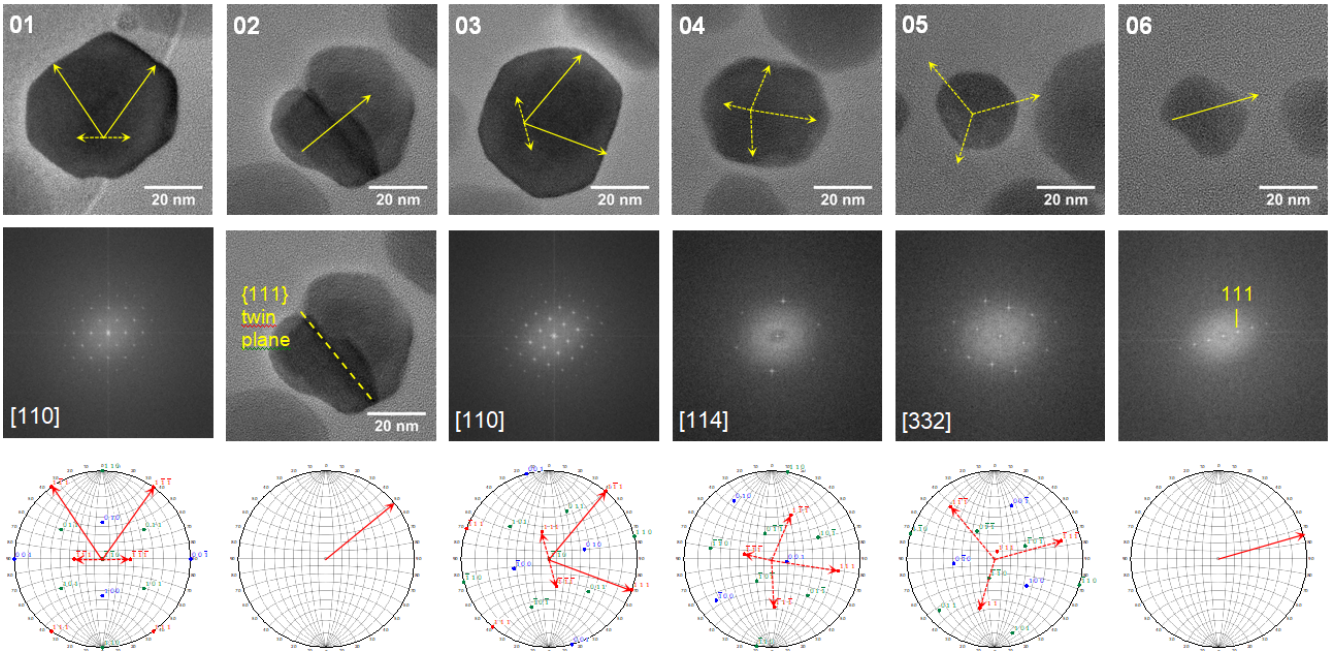


**Figure S8. HRTEM images on magnetosomes of the chain in Fig. S4.** <111> crystallographic directions determined from Fast Fourier Transform (FFT) on HRTEM images or trace of {111} twin boundary.